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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/740,967	12/21/2000	Suk-Won Choi	8733.359.00	6276

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EXAMINER

DUDEK, JAMES A

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 04/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/740,967

Applicant(s)

CHOI ET AL.

Examiner

James A. Dudek

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 13-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 “the electric field is a direct current electric field” lack proper antecedent basis.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 4-5, 8-11 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by 5,948,486 (“486”).

Per claim 1, 486 teaches a method of fabricating a liquid crystal display device, comprising: forming a first orientation film on a first substrate [see layers 5 and 6]; forming a second orientation film on a second substrate [see layers 5 and 6]; spacing the first and second substrates apart by a gap [see figure 1]; forming a ferroelectric liquid crystal layer between the first and second substrates, the ferroelectric liquid crystal layer having an additive [see column, lines 34-37]; aligning the ferroelectric liquid crystal layer around a phase transition temperature of a SmC\* phase [see column 7, first two paragraphs]; and forming polymer networks in the ferroelectric liquid crystal layer by polymerizing the additives [see column 7, lines 53-54].

Per claim 2, 486 teaches a method of fabricating a liquid crystal display device according to claim 1, wherein the additive includes an acrylate compound [see column 12 last paragraph].

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Per claims 4-5, 486 teaches method of fabricating a liquid crystal display device according to claim 1, wherein the polymer networks are formed by exposing the ferroelectric liquid crystal layer to light [see column 7, lines 25-32].

Per claims 8-9, 486 teaches a method of fabricating a liquid crystal display device according to claim 1, wherein the polymer networks are formed along molecule layer boundaries of the ferroelectric liquid crystal layer [see paragraph bridging columns 5-6].

Per claims 10-11, 486 teaches a method of fabricating a liquid crystal display device according to claim 1, wherein the phase transition temperature includes those from the SmA phase to the SmC\* phase [see column 4, lines 44-56 and the last line].

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3, 6-7, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over 486.

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Per claim 3, 468 teaches a method of fabricating a liquid crystal display device according to claim 1, however 468 fails to teach a weight % of the additive in the ferroelectric liquid crystal layer is between 1 and 3%. Though, table 5, teaches compound II percent weight is between 2.0 percent and 10.8 percent and overlapping ranges are at least obvious, see In re Malagari, 499 F.2d 1297 (1974).

Per claim 12, 486 teaches a method of fabricating a liquid crystal display device according to claim 1, but lack the electric field is a direct current electric field. However, it was well known to apply a dc electric field in order to obtain macroscopic uniformity of the LC molecules. Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made apply a dc electric field.

6. A method of fabricating a liquid crystal display device according to claim 5, wherein the energy of the ultraviolet is between 40 and 200 nJ/cm.sup.2.

Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over 6,108,061 ("061").

061 teaches a method of fabricating a liquid crystal display device, comprising: forming a first orientation film on a first substrate; forming a second orientation film on a second substrate [see layers 5 and 6]; spacing the first and second substrates apart by a gap; forming a ferroelectric liquid crystal layer between the first and second substrates, the ferroelectric liquid crystal layer having an additive; aligning the ferroelectric liquid crystal layer around a phase transition temperature of a SmC\* phase; and forming polymer networks in the ferroelectric liquid crystal layer by polymerizing the additives [see columns 7-8].

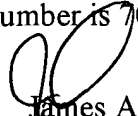
Per claim 6-7, 061 teaches a method of fabricating a liquid crystal display device according to claim 5, wherein the power of the ultraviolet is between 1 and 5 mW/cm.sup.2. Regarding overlapping ranges see In re Malagari. Note that this would also overlap the claimed energy as energy and power are inherently related.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Dudek whose telephone number is 308-4782. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 703-305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7721 for regular communications and 703-308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



James A. Dudek  
Primary Examiner  
Art Unit 2871

April 1, 2003